

**Safety Literature 8<sup>th</sup> January 2023****Study protocol for a pilot randomized trial of a virtual occupational therapy fall prevention intervention for people with HIV and alcohol use**

Shin D, Gill SV, Kim TW, Magane KM, Mason T, Heeren T, Winter M, Helfrich C, Saitz R. Subst. Abuse Res. Treat. 2022; 16: e11782218221145548.

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**DOI** 10.1177/11782218221145548 **PMID** 36578450

**Abstract**

**BACKGROUND:** People living with HIV (PLWH) are at risk for falls due to polypharmacy, unhealthy substance (risky alcohol and/or illicit drug) use, low physical activity, and frailty combined with typical age-related physical changes. Fall prevention is needed to reduce the morbidity related to falls and fractures, however, there is a paucity of data on the design of a fall prevention intervention and whether it can be delivered virtually. We describe the protocol of a pilot randomized trial of a virtual occupational therapy fall prevention intervention for people with HIV at high risk for falls and recent alcohol and/or drug use.

**METHOD:** PLWH will be recruited from the Boston ARCH 4F Cohort study, an observational study of PLWH to examine the impact of alcohol on falls. Trial participants will be randomized to either an occupational therapy-led fall prevention intervention or provided with written education about fall prevention and alcohol use (control). The 10-week fall prevention intervention was based upon results from qualitative interviews with PLWH about falls and will consist of weekly virtual group sessions, home exercises and phone-check-ins, delivered by occupational therapists. The primary outcome measures will be number of groups attended and a participant-completed satisfaction survey. Change in number of falls, alcohol and other drug use, and physical functioning will be examined.

**DISCUSSION:** A virtual occupational therapy fall prevention intervention addresses the emerging concern of fall risk in PLWH and alcohol use. This pilot study will provide preliminary estimates of fall-related outcomes as well as feasibility of study procedures for a larger trial. **CLINICALTRIALSGOV IDENTIFIER:** NCT04804579. Boston University Protocol Record H-41041.

Language: en

**Keywords**

substance use; alcohol use; falls; HIV; fall prevention intervention; occupational therapy

## **The minimal important change for measures of balance and postural control in older adults: a systematic review**

Low DC, Walsh GS. Age Ageing 2022; 51(12): afac284.

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### **Abstract**

The minimal important change and analogous terms (MIC) can provide a measure of change in health outcome variables that is associated with a level of importance for participant/patient. This review explores the availability of the MIC for different balance measures used with older adults in research and clinical settings. PubMed, ProQuest and Web of Science search engines were used and based on the inclusion and exclusion criteria, 11 studies were deemed suitable for data extraction and analysis. The results demonstrated that MIC is available for the following balance-associated tests: Berg Balance Scale, Timed Up and Go, Short Physical Performance Battery, BESTest and the Tinetti test. A range of MIC values were shown, reflective of different older adult health conditions, calculation methods and anchors used. It was also evident that the responsiveness of the test was not always available or appropriately determined, questioning the validity of the MIC value published. Greater research is needed to establish MIC for balance measurements for use with older adults with different health conditions, preferably using objective measures such as falls. The calculation of such statistics will improve the evaluation of intervention effectiveness.

Language: en

### **Keywords**

older adults; systematic review; older people; minimal clinical important change (MCIC); minimum important change (MIC); responsiveness

## **The number of falls recalled in the past year and balance confidence predict the frequency of injurious falls by unilateral lower limb prosthesis users**

Tobaigy M, Hafner BJ, Sawers A. PM R 2022; ePub(ePub): ePub.

(Copyright © 2022, American Academy of Physical Medicine and Rehabilitation, Publisher Elsevier Publishing)

**DOI** 10.1002/pmrj.12936 **PMID** 36580500

### **Abstract**

**INTRODUCTION:** Several personal characteristics have been associated with an increased risk for injurious falls by LLP users. To date however, none have been used to effectively predict the occurrence of injurious falls.

**OBJECTIVE:** Develop a model that could predict the number of injurious falls over the next six months and identify fall-related circumstances that may increase the odds of a fall being injurious in unilateral LLP users.

**DESIGN:** A secondary analysis of a prospective observational study. **SETTING:** Research laboratory. **PARTICIPANTS:** Sixty unilateral LLP users with a transtibial or transfemoral amputation. **INTERVENTION:** Not applicable. **MAIN OUTCOME MEASURE(S):** Participants' characteristics were recorded at baseline. Falls and their circumstances and consequences were collected prospectively over six months via monthly telephone calls. Multivariate negative binomial regression was used to predict the number of injurious falls over the next 6-months in LLP users. Incidence rate ratios (IRR) were derived to determine the risk of an injurious fall. Bivariate logistic regression was used to identify the associations between injurious falls and fall-related circumstances. Odds ratios (OR) were derived to characterize the odds that a fall would be injurious.

**RESULTS:** The final multivariate model, which included the number of falls recalled in the past year (IRR=1.31, 95% CI: 1.01 - 1.71,  $p=.045$ ) and balance confidence ( $p=.120$ ), predicted the number of injurious falls in the next 6 months ( $X(2) (2) = 8.15$ ,  $p=.017$ ). Two fall-related circumstances were found to increase the odds that a fall would be injurious, fatigue due to activity (OR=15.1, 95% CI: 2.25-101.6,  $p<.005$ ), and tiredness from a lack of sleep (OR=5.54, 95% CI: 2.06-14.9,  $p<.001$ ).

**CONCLUSION:** The results suggest that the number of falls recalled in the past year and balance confidence scores estimate the number of injurious falls a LLP user will experience in the next 6 months. This article is protected by copyright. All rights reserved.

Language: en

## **A process evaluation of an on-line fall prevention and management program for individuals who use wheelchairs or scooters living with multiple sclerosis**

Van Denend T, Peterson EW, McArthur AR, Yarnot R, Kish J, Steinkellner S, Sandhu A, Rice LA. *Front. Public Health* 2022; 10: e1042668.

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**DOI** 10.3389/fpubh.2022.1042668 **PMID** 36579061

### **Abstract**

**BACKGROUND:** Falls and resulting injury are a significant concern for individuals living with multiple sclerosis (MS) that use a wheelchair and/or scooter to support mobility. Effective fall prevention efforts are vital to support the health, wellbeing, and participation for these individuals. **AIMS:** This study reports the findings from the process evaluation conducted in association with a pilot study evaluating the efficacy of Individualized Reduction of FaLLs-Online (iROLL-O), an online, group fall prevention, and management program specifically designed for community-based people living with multiple sclerosis (pwMS) who are full-time wheelchair or scooter users.

**METHODS:** A mixed-methods process evaluation was conducted, with specific attention to the impact of online delivery on intervention implementation, participant satisfaction, and mechanisms of change (MOC). Multiple data sources were utilized, including post-session and post-intervention participant and trainer feedback forms and participant qualitative interview data. Descriptive analysis was conducted using Microsoft Excel. Close-ended questions were analyzed by examining five-point Likert scale responses. Qualitative interview data was explored using thematic analysis.

**RESULTS:** Twelve participants and three trainers (one occupational therapist and two physical therapists) contributed to the study. Online delivery did not compromise session fidelity, which averaged 95%. No significant adaptations to the intervention were made during delivery. Participant satisfaction was high at 4.6/5.0. Post-course Trainer Feedback Forms indicate trainer satisfaction with the group dynamic, ability to address unique group needs, and program content. Reach improved with online delivery as transportation barriers were removed and recruitment from a broader geographic area was enabled. Three themes reflecting key MOC emerged from the analysis: group context, motivation for participant engagement, and the multifaceted nature of the program. The COVID-19 pandemic was identified as a contextual factor impacting community participation. Both participants and trainers identified the group dynamic as a strength. The trainers valued the program's flexibility in allowing them to address individual and/or group-specific fall prevention needs.

**CONCLUSION:** Feedback from key stakeholders was essential to a meaningful process evaluation. Online delivery supported program implementation, including reach, and resulted in high levels of satisfaction among participants and trainers. Future iterations should aim to uphold the positive group context, recruit, and train skilled interventionists who are licensed as occupational or physical therapists and continue to provide the program's diverse approach to fall prevention and management.

Language: en

### **Keywords**

Humans; Pilot Projects; Pandemics; \*COVID-19; fall management; Accidental Falls/prevention & control; \*Multiple Sclerosis/prevention & control; \*Wheelchairs; complex intervention evaluation; implementation; mechanisms of change; multiple sclerosis; scooter users; telerehabilitation; wheelchair users

## Cardiovascular disease, muscle function, and long-term falls risk: the Perth Longitudinal Study of Ageing Women

Gebre AK, Sim M, Dalla Via J, Rodríguez AJ, Zhu K, Schousboe JT, Hodgson JM, Bondonno CP, Prince RL, Lewis JR. Arch. Gerontol. Geriatr. 2022; 107: e104911.

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### Abstract

**BACKGROUND:** A few cross-sectional studies have highlighted inconsistent associations between cardiovascular disease (CVD) and musculoskeletal conditions. We sought to investigate the relationship between clinical CVD including subtypes, compromised muscle function, as well as incident self-reported and injurious falls in older women.

**MATERIALS AND METHODS:** 1431 community-dwelling older women (mean age  $\pm$  SD;  $75.2 \pm 2.7$  years) were included in over 14.5 years of a prospective study, the Perth Longitudinal Study of Ageing in Women. CVD (up to 18-years prior to the baseline visit) and injurious fall hospitalizations over 14.5 years were obtained from linked health records. Self-reported falls for five years were obtained via a written adverse event diary posted every four months. Timed-Up-and-Go (TUG) test and hand grip strength were used to assess mobility and muscle strength, respectively. Mobility impairment was defined as TUG performance  $>10.2$  sec and muscle weakness characterized as grip strength  $<22$  kg.

**RESULTS:** Over 5-years, 411 (28.7%) women reported a falls, while 567 (39.6%) were hospitalized due to an injurious fall over 14.5 years. Prior CVD events were associated with 32% (HR 1.32 95%CI, 1.06-1.64) and 29% (HR 1.29 95%CI, 1.07-1.56) increased risk of self-reported and injurious falls, respectively, in multivariable-adjusted models. When considering subtypes of CVD, only cerebrovascular disease was related to self-reported (HR 1.77; 95%CI, 1.15-2.72) and injurious falls requiring hospitalization (HR 1.51; 95%CI, 1.00-2.27). CVD was also associated with cross-sectional and prospective mobility impairments. However, no evidence for such relationships was observed for muscle weakness.

**CONCLUSIONS:** Prevalent CVD events, particularly cerebrovascular disease, are related to an increased risk of long-term falls. These findings highlight the need to recognize increased falls risk in patients with CVD. Further, there is a need to understand whether incorporating prevalent CVD into falls screening tools improves risk stratification or affects model calibration.

Language: en

### Keywords

Muscle weakness; Cardiovascular disease; Fall-related hospitalization; Mobility impairment; Self-reported falls

**Corrigendum: Risk factors of falls in elderly patients with visual impairment**

Ouyang S, Zheng C, Lin Z, Zhang X, Li H, Fang Y, Hu Y, Yu H, Wu G. Front. Public Health 2022; 10: e1087472.

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**Abstract**

[This corrects the article DOI: 10.3389/fpubh.2022.984199.].

A corrigendum on

**Risk factors of falls in elderly patients with visual impairment**

by Ouyang, S., Zheng, C., Lin, Z., Zhang, X., Li, H., Fang, Y., Hu, Y., Yu, H., and Wu, G. (2022). Front. Public Health 10:984199. doi: 10.3389/fpubh.2022.984199

In the published article, the first author's name was incorrectly written as "Ouyang Shuyi." The correct spelling is "Shuyi Ouyang."

The authors apologize for this error and state that this does not change the scientific conclusions of the article in any way. The original article has been updated.

[The author's name has been corrected in the SafetyLit database.]

Language: en

**Keywords**

falls; risk factor; elderly patients; prediction tool; visual impairment

## Effects of dual task training on dual task gait performance and cognitive function in individuals with Parkinson's disease: a meta-analysis and meta-regression

Wong PL, Cheng SJ, Yang YR, Wang RY. Arch. Phys. Med. Rehabil. 2022; ePub(ePub): ePub.

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### Abstract

**OBJECTIVE:** To explore the effects of dual task (DT) training on DT gait performance and cognitive function in individuals with Parkinson's disease (PD) and to examine factors that might influence the effects of DT training.

**DATA SOURCES:** PubMed, Wiley Online Library, Cochrane Library, CINAHL, and Medline were searched for articles published from January 2006 to December 2021.

**STUDY SELECTION:** Randomized controlled trials comparing DT training with usual care or general exercise were included.

**DATA EXTRACTION:** The outcomes studied were DT gait parameters including speed, step and stride length, cadence, step and stride time variability, dual task cost on gait speed, and Trail Making Tests (TMT) presented as standardized mean differences. The Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) was used to evaluate the quality of evidence.

**DATA SYNTHESIS:** Ten randomized controlled trials with 466 participants were included in the meta-analysis. The included studies presented, in general, with a low to high risk of bias. Meta-analyses used a random-effects model for all analysis. The meta-analysis showed the DT training effects on DT gait speed (SMD=0.825,  $p=0.012$ ), DT step and stride length (SMD=0.400,  $p=0.015$ ), TMT-A (SMD=0.533,  $p=0.010$ ) and TMT-B (SMD=0.516,  $p=0.012$ ) compared to the control group. Only the effect on TMT-A was maintained at the follow-up assessment. The results of meta-regression showed that participants with slower initial single task gait speed improved more after DT training on DT step and stride length.

**CONCLUSIONS:** The DT training improved more in DT gait speed with moderate-quality evidence as compared with usual care or conventional physical training in individuals with PD. The beneficial effects of DT training on DT step and stride length, attention and executive function were also demonstrated in this meta-analysis. Furthermore, the improvement in the DT walking step and stride length was related to the participant's initial single task gait speed.

Language: en

### Keywords

Rehabilitation; Cognitive function; Dual task training; Dual task walking; Parkinson's disease; Physical therapy

## **Exergame-assisted rehabilitation for preventing falls in older adults at risk: a systematic review and meta-analysis**

Lapierre N, Um Din N, Belmin J, Lafuente-Lafuente C. Gerontology 2022; ePub(ePub): ePub.

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**DOI** 10.1159/000528854 **PMID** 36580901

### **Abstract**

**INTRODUCTION:** Exergaming is increasingly employed in rehabilitation for older adults. However, their effects on fall rate and fall risk remain unclear.

**METHODS:** We conducted a systematic review and meta-analysis that included randomized controlled trials (RCTs) comparing exergame-assisted rehabilitation with control groups, published in French or English, from Web of Science, CINAHL, Embase, Medline and CENTRAL (last search in June 2021). Two reviewers independently assessed studies. Risk of bias was assessed using RoB2, PEDRO scale and the GRADE system. The outcomes of interest were: a) Fall rate, b) Risk of falling, measured by the Short Physical Performance Battery (SPPB), Timed up and Go (TUG), One-Leg Stance or Berg Balance Scale (BBS), c) Fear of falling, measured with the Fall Efficacy Scale (FES-I) or the Activities-specific Balance Confidence (ABC) score. Data was pooled and mean differences (MD) between exergame and control groups calculated using a random-effects model.

**RESULTS:** Twenty-seven RCTs were included (1415 participants, including 63.9% of women, mean age ranged from 65 to 85.2 years old). Exergame-assisted interventions were associated with a reduction in the incidence of falls (4 studies, 316 participants, MD=-0.91 falls per person per year; 95% CI: -1.65 to -0.17,  $p=0.02$ , moderate quality). Regarding fall risk (20 studies included, low-quality evidence), SPPB did not change (MD=0.74; 95% CI: -0.12; 1.60,  $p=0.09$ ), but all other scores were improved: BBS (MD= 2.85; 95% CI: 1.27 to 4.43,  $p=0.0004$ ), TUG (MD=-1.46; 95% CI: -2.21 to -0.71,  $p=0.0001$ ) and One-leg stance (MD=7.09; 95% CI: 4.21 to 9.98,  $p<0.00001$ ). Fear of falling scores (FES-I and ABC) showed no difference.

**CONCLUSION:** There is moderate quality evidence of a reduction in the fall rate with exergame-assisted rehabilitation and low-quality evidence suggesting a mild reduction of the risk of falling. Statistically significant benefits from exergame-assisted rehabilitation did not achieve clinically meaningful changes in risk of falling assessments.

Language: en

## **Exergaming delivery of a balance and fall prevention program for older adults: a feasibility study**

Ren I, Rozanski G, Fernandez N, Zabala A, Ramos A, Arrinda I, Tabacof L, Putrino D. Digit. Health 2022; 8: e20552076221144105.

(Copyright © 2022, SAGE Publishing)

**DOI** 10.1177/20552076221144105 **PMID** 36569823

### **Abstract**

**OBJECTIVE:** Older adults are at high risk of falls and this problem calls for efficient and scalable interventions. This study investigated whether a motion capture system paired with balance training exergaming software is a feasible strategy to deliver therapeutic exercise to older adults in an aged care facility.

**METHODS:** This study analyzed data from a quality improvement rehabilitation initiative. Two convenience samples of older adults were included: a usual care group (n = 12), admitted to a rehabilitation hospital and receiving standard in-patient therapy 5×/week and the Evolv group (n = 12), admitted to an aged care facility, prescribed exergaming 3×/week. All participants performed 30-minute exercise sessions based on a fall prevention program over 3 months. The Short Physical Performance Battery (SPPB) and Tinetti Performance Oriented Mobility Assessment test were administered pre- and post-treatment.

**RESULTS:** No adverse events were recorded during the interventions. Mean SPPB increase for Evolv participants was  $2.25 \pm 1.35$  ( $p < .001$ , CI for mean = 1.39 to 3.11,  $d = 1.66$ ), compared with a non-significant change in the usual care group (mean increase =  $2.25 \pm 3.82$ ,  $p = .066$ , CI for mean = -0.18 to 4.68,  $d = 0.59$ ). Tinetti improvement was significant for the individuals receiving usual care ( $3.83 \pm 2.82$ ,  $p = .012$ , CI for mean = 1.01 to 6.66,  $d = 0.86$ ) but there were no significant between-group differences in outcomes.

**CONCLUSIONS:** Exergaming with the Evolv system for balance and strength training may be a feasible strategy to improve physical function for older adults recovering in an aged care facility.

Language: en

### **Keywords**

fall prevention; Older adults; balance; rehabilitation; e-Health; exergaming

## **Fall-related health service use in Stepping On programme participants and matched controls: a non-randomised observational trial within the 45 and Up Study**

Paul SS, Khalatbari-Soltani S, Dolja-Gore X, Clemson L, Lord SR, Harvey L, Tiedemann A, Close JCT, Sherrington C. Age Ageing 2022; 51(12): afac272.

(Copyright © 2022, Oxford University Press)

**DOI** 10.1093/ageing/afac272 **PMID** 36580389

### **Abstract**

**BACKGROUND:** Falls and fall-related health service use among older adults continue to increase. The New South Wales Health Department, Australia, is delivering the Stepping On fall prevention programme at scale. We compared fall-related health service use in Stepping On participants and matched controls.

**METHODS:** A non-randomised observational trial was undertaken using 45 and Up Study data. 45 and Up Study participants who did and did not participate in Stepping On were extracted in a 1:4 ratio. Rates of fall-related health service use from linked routinely collected data were compared between participants and controls over time using multilevel Poisson regression models with adjustment for the minimally sufficient set of confounders identified from a directed acyclic graph.

**RESULTS:** Data from 1,452 Stepping On participants and 5,799 controls were analysed. Health service use increased over time and was greater in Stepping On participants (rate ratios (RRs) 1.47-1.82) with a spike in use in the 6 months prior to programme participation. Significant interactions indicated differential patterns of health service use in participants and controls: stratified analyses revealed less fall-related health service use in participants post-programme compared to pre-programme (RRs 0.32-0.48), but no change in controls' health service use (RRs 1.00-1.25). Gender was identified to be a significant effect modifier for health service use ( $P < 0.05$  for interaction).

**DISCUSSION:** Stepping On appeared to mitigate participants' rising fall-related health service use. Best practice methods were used to maximise this study's validity, but cautious interpretation of results is required given its non-randomised nature.

Language: en

### **Keywords**

older adults; fall prevention; older people; accidental falls; health service utilisation

## **History of falls and fear of falling are predictive of future falls: outcome of a fall rate model applied to the Swiss CHEF Trial cohort**

Wapp C, Mittaz Hager AG, Hilfiker R, Zysset P. Front. Aging 2022; 3: e1056779.

(Copyright © 2022, Frontiers Research Foundation)

**DOI** 10.3389/fragi.2022.1056779 **PMID** 36589140

### **Abstract**

**BACKGROUND:** A third of adults aged 65 years and older fall every year, and falls are a common cause of unintentional injuries. Accurate identification of people at risk of falling is an important step in the implementation of preventive strategies.

**OBJECTIVE:** Our aim was to investigate the association of fall risk factors with number of reported falls in terms of incidence rate ratios and to develop a fall rate prediction model.

**METHODS:** In the randomized controlled trial Swiss CHEF, multiple fall risk variables were assessed in community-dwelling older adults at baseline examination, including age, sex, body mass index, fear of falling, number of falls during the prior 12 months, scores on several physical performance tests, comorbidities, and quality of life. Over the following 6 months, interventions were administered in the form of three home-based exercise programs. Participants were subsequently followed up for another 6 months. Falls were reported prospectively using monthly calendars. Incidence rate ratios were derived via negative binomial regression models. Variable selection for the prediction model was conducted using backward elimination and the least absolute shrinkage and selection operator method; the model with the smallest prediction error was then identified.

**RESULTS:** Associations with the number of reported falls were found for number of prior falls, fear of falling, balance and gait deficits, and quality of life. The final model was derived via backward elimination, and the predictors included were prior number of falls and a measure of fear of falling. Outcome: Number of prior falls and fear of falling can be used as predictors in a personalized fall rate estimate for community-dwelling older adults. Recurrent fallers having experienced four or more falls are especially at risk of falling again.

Language: en

### **Keywords**

risk factors; older adults; prediction; falls; count regression

## **Injurious falls before, during and after dementia diagnosis: a population-based study**

Zhang L, Wang J, Dove A, Yang W, Qi X, Xu W. Age Ageing 2022; 51(12): afac299.

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**DOI** 10.1093/ageing/afac299 **PMID** 36580561

### **Abstract**

**BACKGROUND:** the timing of incident injurious falls at different stages of dementia diagnosis is unclear.

**OBJECTIVES:** to identify when the occurrence of injurious falls begins to increase among individuals who are going to develop dementia, to explore the time point at which people living with dementia are at highest risk of injurious falls and to ascertain differences in fall-related factors pre- and post-dementia diagnosis.

**DESIGN:** this study included 2,707 participants with incident dementia and 2,707 1:1 matched (i.e. same birth year and sex) controls without dementia.

**METHODS:** dementia diagnosis and date of onset were identified from the National Patient Registry (NPR) and the Swedish Cause of Death Register following international criteria. Information on injurious falls and history of chronic disease was obtained from the NPR. Data were analysed using conditional Poisson regression and generalized estimating equation models.

**RESULTS:** compared with controls, the incidence of injurious falls among participants with dementia started to increase beginning 4 years pre-diagnosis (incidence rate ratio [IRR] 1.70, 95% confidence interval [CI] 1.30-2.22), reaching a peak (IRR 3.73, 95% CI 3.16-4.41) in the year of dementia diagnosis. Heavy drinking, physically active and cardiometabolic diseases (CMDs) were associated with incident falls among those with dementia.

**CONCLUSION:** people with dementia have a higher incidence of injurious falls beginning 4 years leading up to diagnosis and peaking during the year of diagnosis. Older age, female, heavy drinking, physically active and CMDs may predict injurious falls among people with dementia.

Language: en

### **Keywords**

older people; population-based study; incident dementia; injurious fall; matched case-control analysis

## **Nonfatal injuries from falls among U.S. military personnel deployed for combat operations, 2001-2018**

Stern CA, Liendo JA, Graham BA, Johnson GM, Kotwal RS, Shackelford S, Gurney JM, Janak JC. Mil. Med. 2022; ePub(ePub): ePub.

(Copyright © 2022, Association of Military Surgeons of the United States)

**DOI** 10.1093/milmed/usac410 **PMID** 36576031

### **Abstract**

**INTRODUCTION:** Falls are a leading mechanism of injury. Hospitalization and outpatient clinic visits due to fall injury are frequently reported among both deployed and non-deployed U.S. Military personnel. Falls have been previously identified as a leading injury second only to sports and exercise as a cause for non-battle air evacuations.

**MATERIALS AND METHODS:** This retrospective study analyzed the Department of Defense Trauma Registry fall injury data from September 11, 2001 to December 31, 2018. Deployed U.S. Military personnel with fall listed as one of their mechanisms of injury were included for analysis.

**RESULTS:** Of 31,791 injured U.S. Military personnel captured by the Department of Defense Trauma Registry within the study time frame, a total of 3,101 (9.8%) incurred injuries from falls. Those who had fall injuries were primarily 21 to 30 years old (55.4%), male (93.1%), Army (75.6%), and enlisted personnel (56.9%). The proportion of casualties sustaining injuries from falls generally increased through the years of the study. Most fall injuries were classified as non-battle injury (91.9%). Falls accounted for 24.2% of non-battle injury hospital admissions with a median hospital stay of 2 days. More non-battle-related falls were reported in Iraq-centric military operations (62.7%); whereas more battle-related falls were reported in Afghanistan-centric military operations (58.3%).

**CONCLUSIONS:** This study is the largest analysis of deployed U.S. Military personnel injured by falls to date. Highlighted are preventive strategies to mitigate fall injury, reduce workforce attrition, and preserve combat mission capability. **LEVEL OF EVIDENCE:** Level III Epidemiologic.

Language: en

## **Timed Up and Go test and gastrointestinal disorders among hospitalized older adults with fall risk**

Chou SJ, Tung HH, Peng LN, Chen LK. Arch. Gerontol. Geriatr. 2022; 107: e104918.

(Copyright © 2022, Elsevier Publishing)

**DOI** 10.1016/j.archger.2022.104918 **PMID** 36580885

### **Abstract**

**PURPOSE OF THE RESEARCH:** The study aimed to examine the correlation between underlying medical conditions and gait analysis parameters as well as determine the key determiners of fall risk.

**MATERIALS AND METHODS:** This was a cross-sectional study. A total of 120 hospitalized older adults, recruited from a medical center in northern Taiwan, completed three instruments: the Timed Up and Go (TUG) test, a demographic questionnaire, and the Morse Fall Scale. The inferential statistics were subjected to the chi-square test, Mann-Whitney U test, Kruskal-Wallis test, and Spearman's rank correlation coefficient analysis to determine the correlations among the demographic variables, gait analysis parameters, and fall risk in elderly inpatients. Logistic regression was used to analyze the predictors of elderly inpatients' fall risk.

**RESULTS:** The results showed that longer TUG test times, slower walking speeds, or shorter stride lengths are related to higher fall risk. The new finding was that longer TUG test times and slow gait speeds were correlated with lower gastrointestinal as well as hepatobiliary and pancreatic diseases.

**CONCLUSIONS:** This study confirms that gait analysis parameters are significantly correlated with fall risk among older inpatients and that TUG is an important indicator of frailty, prefrailty, or metabolic state. Early detection of the symptoms of gastrointestinal disorders and the provision of adequate nutrition could potentially improve inpatients' gait and prevent falls.

Language: en

### **Keywords**

Older adults; Fall risk; Gait analysis cardiac